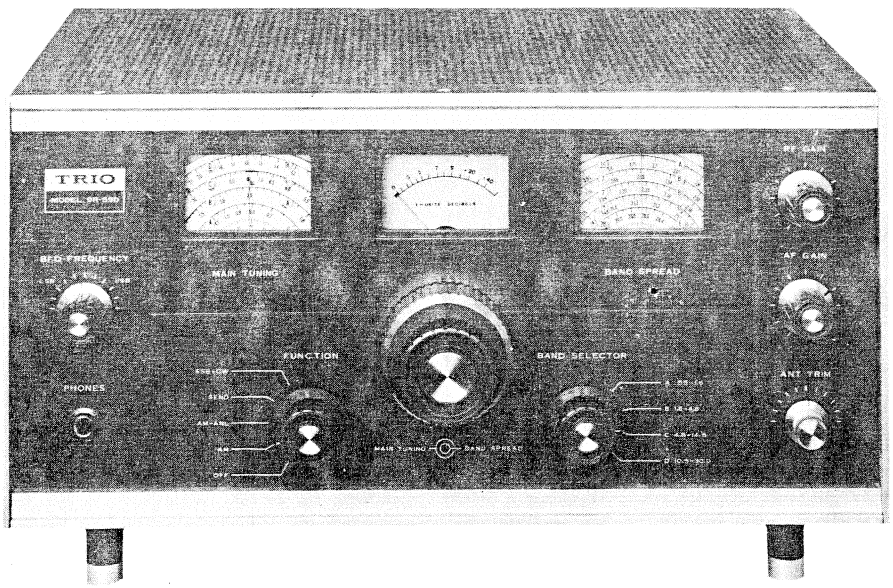
TRIO

SERVICE MANUAL

9R-59DE



COMMUNICATIONS RECEIVER

PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
	CAPACITOR					
C1	Ceramic	150pF	±10%			
C2~4	Ceramic	0.01μF	±10%			
C5	Ceramic	150pF	±10%			
C6	Ceramic	5pF	±10%			
C7~11	Ceramic	0.01μF	±10%			
C12	Ceramic	3pF	±10%			
C13~17	Ceramic	0.01μF	±10%			
C18	Metalized Paper	0.2μF	±20%			
C19	Ceramic	0.01μF	±10%			
C20	Ceramic	1pF	±10%			
C21	Ceramic	100pF	±10%			
C22	Ceramic	20pF	±10%			
C23	Metalized Paper	0.05μF	±20%			
C24	Ceramic	150pF	±10%			
C25	Ceramic	680pF	±10%			
C26, 27	Ceramic	0.01μF	±10%			
C28	Electrolytic Tubular	3μF	150WV			
C29	Ceramic	0.01μF	±10%			
C30	Ceramic	680pF	±10%			
C31	Ceramic	150pF	±10%			
C32	Paper Tubular	0.01μF	±20%			
C33	Electrolytic Tubular	30μF	15WV			
C34	Paper Tubular	0.01μF	±20%			
C35	Electrolytic Tubular	3μF	150WV			
C36	Ceramic	680pF	±10%			
C37	Electrolytic Tubular	10μF	25WV			
C38	Paper Tubular	0.005μF	±20%			
C39	Ceramic	0.01μF	±10%			
C40~42	Electrolytic Tubular	40μF	250WV			
C43~45	Paper Tubular	0.01μF	±20%			
C46	Ceramic	0.01μF	±10%			
C47	Mica	240pF	±5%			
–	Main Variable Capacitor				D01-45	
–	Band Spread Variable Capacitor				D01-117	
–	ANT. Trimmer				D02-40	
	RESISTOR					
R1	Fixed Carbon Composition	470Ω	±5%	1/2W		
R2	Fixed Carbon Composition	1MΩ	±5%	1/2W		
R3	Fixed Carbon Composition	180Ω	±5%	1/2W		
R4	Fixed Carbon Composition	1MΩ	±5%	1/2W		
R5	Fixed Carbon Composition	100kΩ	±5%	1/2W		
R6	Fixed Carbon Composition	330Ω	±5%	1/2W		
R7	Fixed Carbon Composition	68kΩ	±5%	1/2W		
R8	Fixed Carbon Composition	2.2kΩ	±5%	1/2W		
R9	Fixed Carbon Composition	100kΩ	±5%	1/2W		
R10	Fixed Carbon Composition	270Ω	±5%	1/2W		
R11	Fixed Carbon Composition	1kΩ	±5%	1/2W		
R12	Fixed Carbon Composition	22kΩ	±5%	1/2W		
R13	Fixed Carbon Composition	2.2kΩ	±5%	1/2W		
R14	Fixed Carbon Composition	100kΩ	±5%	1/2W		
R15	Fixed Carbon Composition	2.2kΩ	±5%	1/2W		

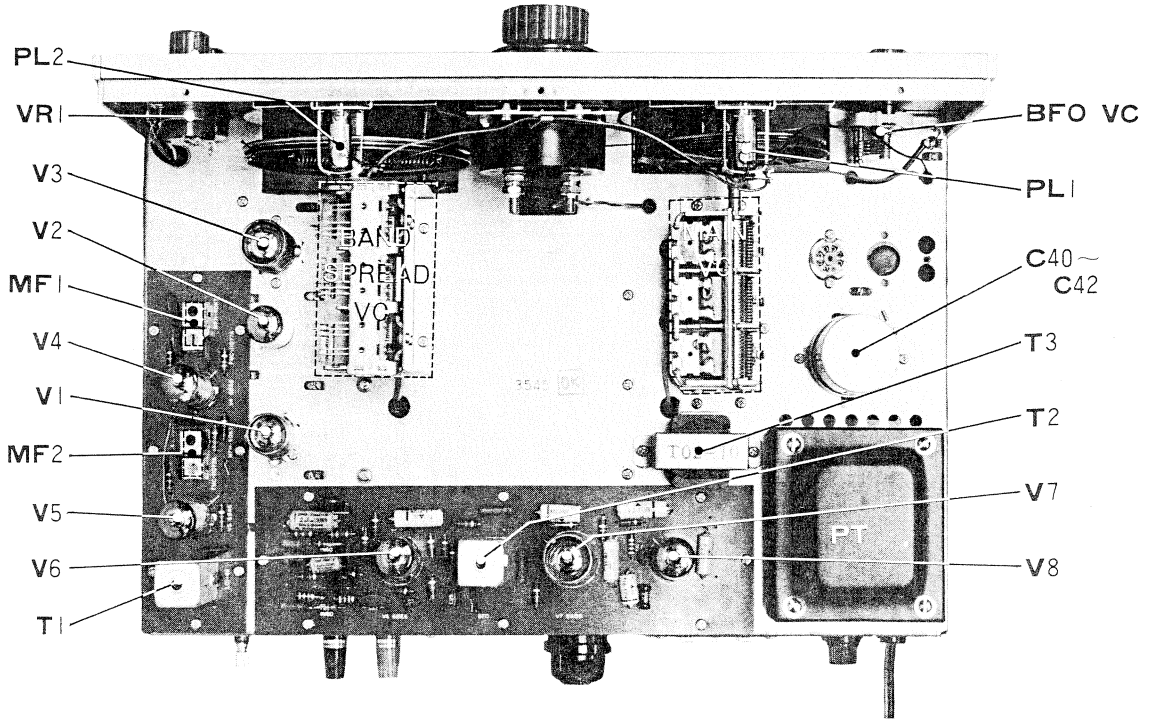
PARTS DESCRIPTION LIST

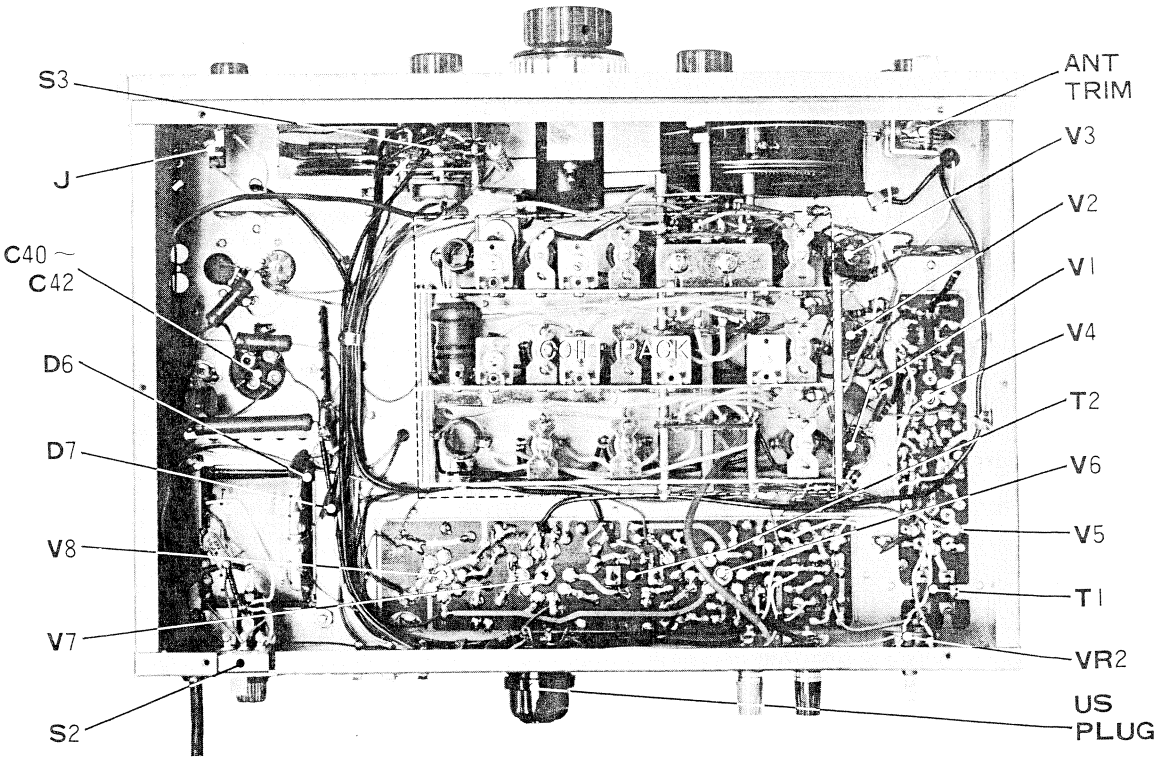
Symbol No.	Description				Part No.	Remarks
R16	Fixed Carbon Composition	820kΩ	±5%	1/2W		
R17	Fixed Carbon Composition	4.7kΩ	±5%	1/2W		
R18	Fixed Carbon Composition	100kΩ	±5%	1/2W		
R19	Fixed Carbon Composition	22kΩ	±5%	1/2W		
R20	Fixed Carbon Composition	1kΩ	±5%	1/2W		
R21, 22	Fixed Carbon Composition	470kΩ	±5%	1/2W		
R23, 24	Fixed Carbon Composition	1MΩ	±5%	1/2W		
R25	Fixed Carbon Composition	10kΩ	±5%	1/2W		
R26, 27	Fixed Carbon Composition	22kΩ	±5%	1/2W		
R28	Fixed Carbon Composition	47kΩ	±5%	1/2W		
R29	Fixed Carbon Composition	22kΩ	±5%	1/2W		
R30	Fixed Carbon Composition	10kΩ	±5%	1/2W		
R31	Fixed Carbon Composition	1kΩ	±5%	1/2W		
R32	Fixed Carbon Composition	100kΩ	±5%	1/2W		
R33	Fixed Carbon Composition	22kΩ	±5%	1/2W		
R34	Fixed Carbon Composition	470kΩ	±5%	1/2W		
R35	Metal Film	330Ω	±10%	1W		
R36	Fixed Carbon Composition	220kΩ	±5%	1/2W		
R37	Wire Wound	2.2kΩ	±5%	8W		
R38, 39	Wire Wound	1kΩ	±5%	4W		
R40	Fixed Carbon Composition	220kΩ	±5%	1/2W		
R41	Fixed Carbon Composition	150Ω	±5%	1/2W		
	TUBE/DIODE					
V1	6BA6/EF93	RF Amp.				
V2	6BE6/EK90	MIX.				
V3	6AQ8/ECC85	OSC.				
V4, 5	6BA6/EF93	IF Amp.				
V6	6BE6/EK90	PRODUCT Det.				
V7	6AQ8/ECC85	BFO & AF.				
V8	6AQ5/EC90	POWER Amp.				
D1	1N60					
D2	SW-05S	AVC Det.				
D3, 4	1N60	AVC & AF Det.				
D5	SW-05S	Noise Limiter				
D6, 7	SW-05S	Rect				
	COIL/TRANSFORMER					
L1	Mechanical Filter				L4006	L79-0003-05
L2	Matching Transformer				L51-19	
L3	Mechanical Filter				L4006	
L4	Matching Transformer				L51-19	
T1	455KC (1F)				L01-66	
T2	455KC (BFO Coil)				L05-05	
T3	Output Transformer				T02-10	
P.T.	Power Transformer				T01-169M	
	POTENTIOMETER					
VR1	10kΩ (C)	RF : GAIN			R01-1203	
VR2	500Ω (B)	S-METER			R01-0307	
VR3	500kΩ (A)	AF : GAIN			R01-0109	
	SWITCH					
S1	FUNCTION	(Rotary)			S03-597	

PARTS DESCRIPTION LIST

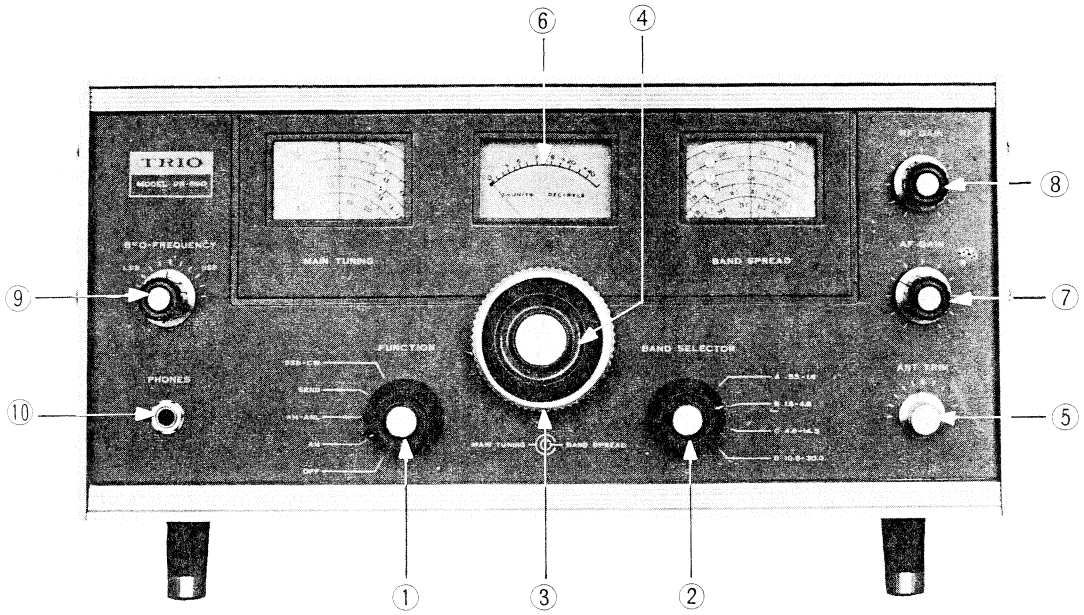
Symbol No.	Description			Part No.	Remarks
S2	POWER (Slide)			S10-22D	
	MISCELLANEOUS				
–	Main Dial Panel			A12-LA21A	
–	Sub Dial Panel			A12-LA21B	
–	US Socket			E01-38K	
–	US Plug			E09-580	
–	Knob (FUNCTION)			S14-616	
–	Knob (BFO)			S14-256	K21-0052-04
–	Knob (MAIN TUNING)			S14-620	K21-0090-04
–	Knob (BAND SPREAD)			S14-619	K21-0089-04
–	Knob (BAND SELECTOR)			S14-616	K21-0086-04
–	Knob (RF GAIN)			S14-256	K21-0052-04
–	Knob (AF GAIN)			S14-256	
–	Knob (ANT TRIMMER)			S14-706	K20-0074-04
	COIL PACK (L04-15)				
	CAPACITOR				
C101	Mica	50pF	±5%		
C102	Mica	2750pF	±5%		
C103	Mica	4000pF	±5%		
C104	Ceramic	5pF	±10%		
CT1~5	Mica Trimmer	(10pF ~ 50pF)			
CT6	Pading Trimmer				
CT7	Mica Trimmer	(10pF ~ 50pF)			
CT8, 9	Cylinder Trimmer	(2pF ~ 7pF)			
	RESISTOR				
R101	Fixed Carbon Composition	680Ω	±5% 1/2W		
	SWITCH				
S3	BAND (Rotary) Coil-Pack Unit			L60-0011-05	
	COIL				
–	ANT. Coil			L101-104	
–	RF. Coil			L105-108	
–	OSC. Coil			L109-112	

CHASSIS TOP & BOTTOM VIEW

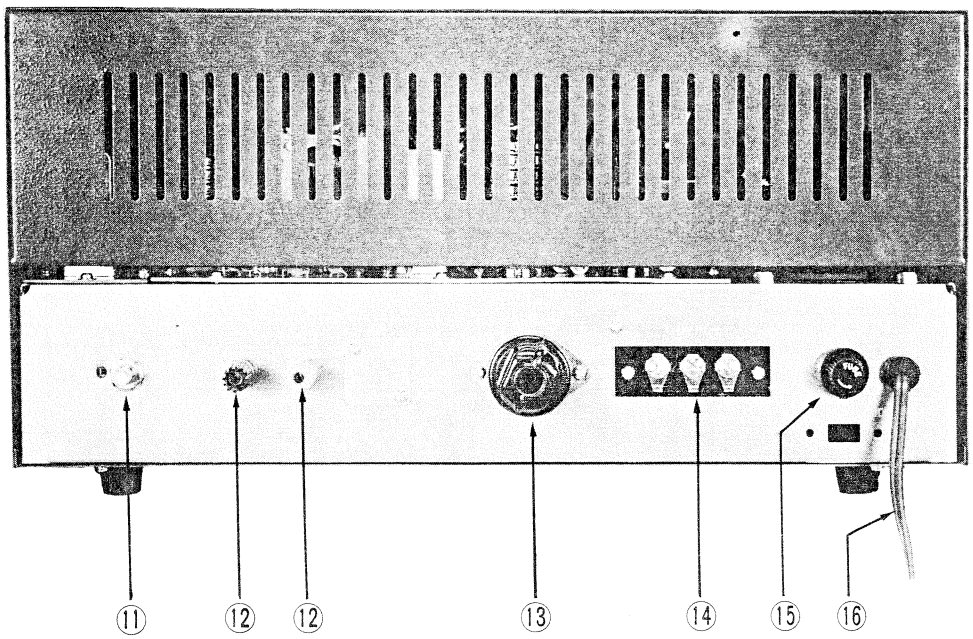




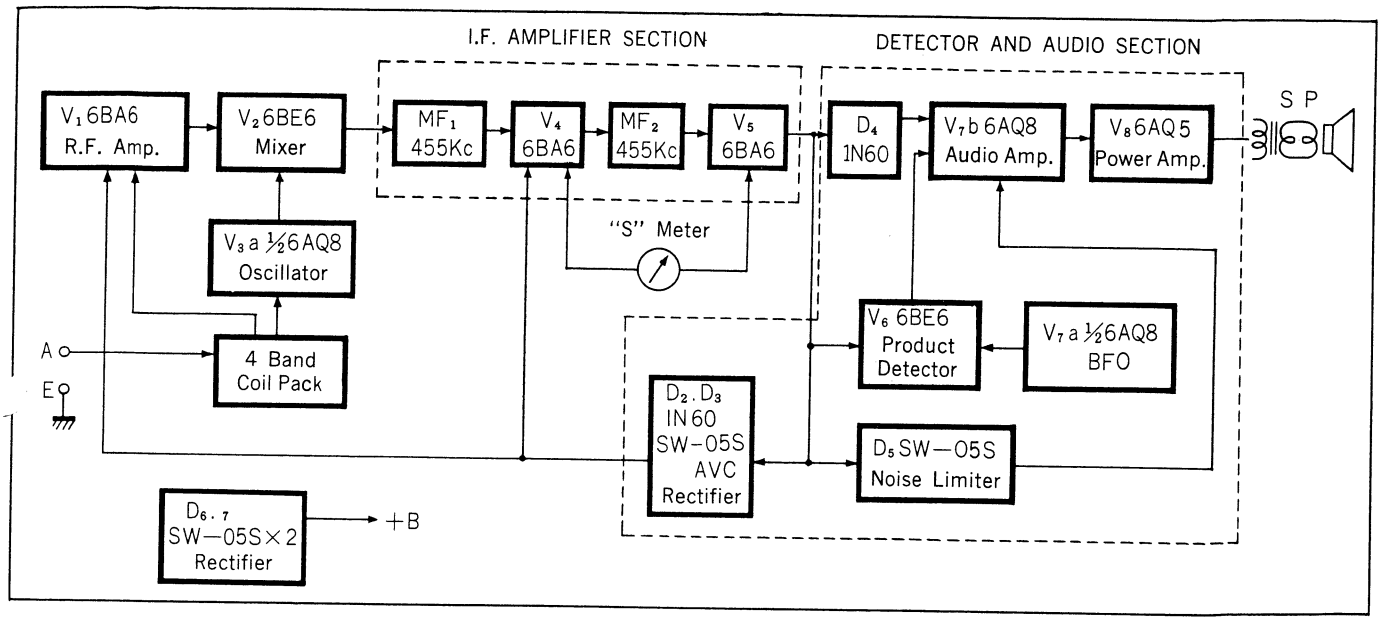
FRONT & BACK VIEW

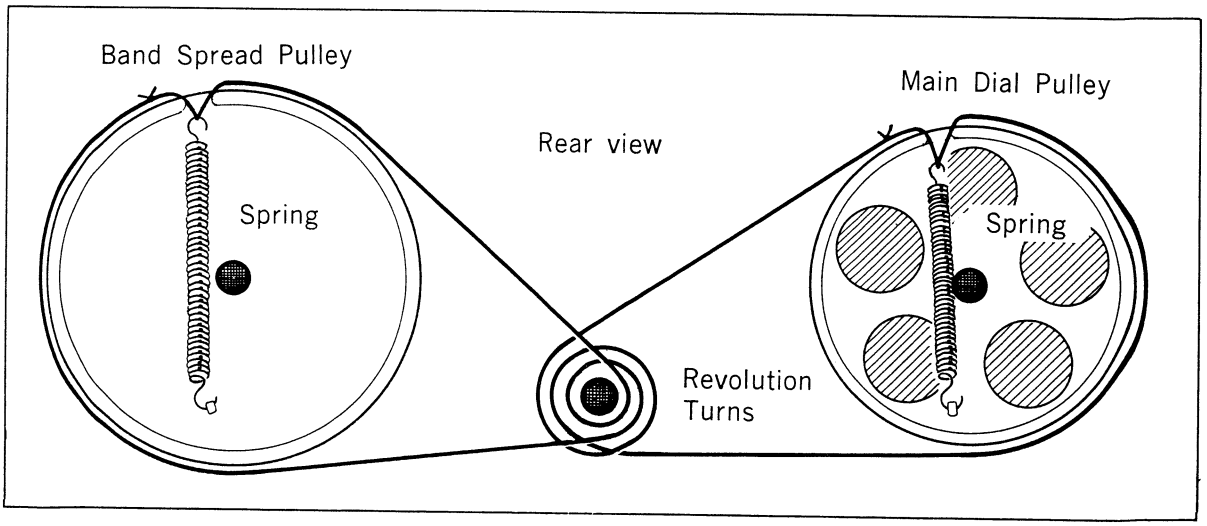


1. FUNCTION
2. BAND SELECTOR
3. MAIN TUNING
4. BAND SPREAD
5. ANT TRIM
6. S-METER
7. AF GAIN
8. RF GAIN
9. BFO-FREQUENCY
10. PHONES
11. ZER-ADJ
12. A-E TERMINALS
13. REMOTE
14. OUTPUT
15. FUSE
16. AC LINE CORD

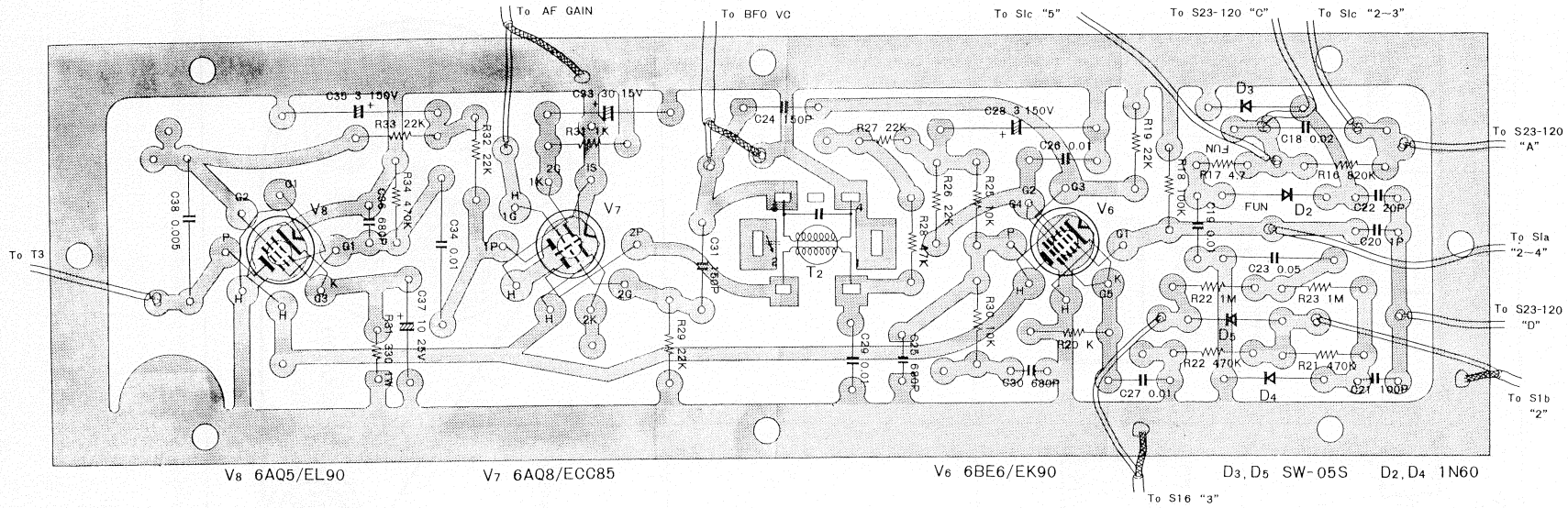


BLOCK DIAGRAM & DIAL CORD STRINGING

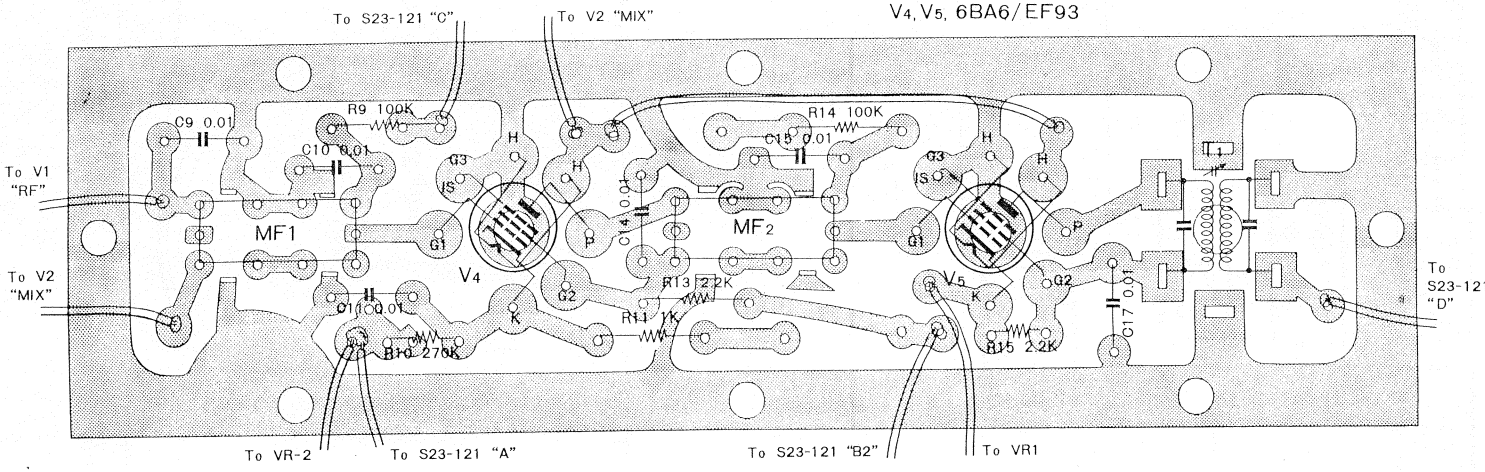




S23-121



S23-120



STEP	ALIGNMENT	SIGNAL GENERATOR OUTPUT	BAND SETTING	DIAL SETTING
1	IFT alignment	Inject signal generator output to the point where the G3 lead from the coil kit is connected to the switch. Also connect ground side to the chassis. (Feed 455 kHz signal)	A	No broadcast point
2	'A' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 600 kHz signal)	A	600 kHz
3	'A' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1,400 kHz signal)	A	1,400 kHz
4	'A' band high freq. end ANT circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1,400 kHz signal)	A	1,400 kHz
5	'B' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1.7 MHz signal)	B	1.7 MHz
6	'B' band low freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1.7 MHz signal)	B	1.7 MHz
7	'B' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 4 MHz signal)	B	4 MHz
8	'B' band high freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 4 MHz signal)	B	4 MHz
9	'C' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 6 MHz signal)	C	6 MHz
10	'C' band low freq. end ANT, RF coil alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 6 MHz signal)	C	6 MHz
11	'C' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 12 MHz signal)	C	12 MHz
12	'C' band high freq. end ANT, RF coil alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 12 MHz signal)	C	12 MHz
13	'D' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 13 MHz signal)	D	13 MHz
14	'D' band low freq. end ANT, RF circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 13 MHz signal)	D	13 MHz
15	'D' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 26 MHz signal)	D	26 MHz
16	'D' band high freq. end ANT, RF circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 26 MHz signal)	D	26 MHz

NOTE: During the adjustment of the RF trimmers in Step 16, a shift of the receiver's oscillator frequency and resultant signal reception point drift may occur due to a "pulling" effect phenomena. In such a case, the band spread dial should be used to keep the signal tuned in at maximum reception point.

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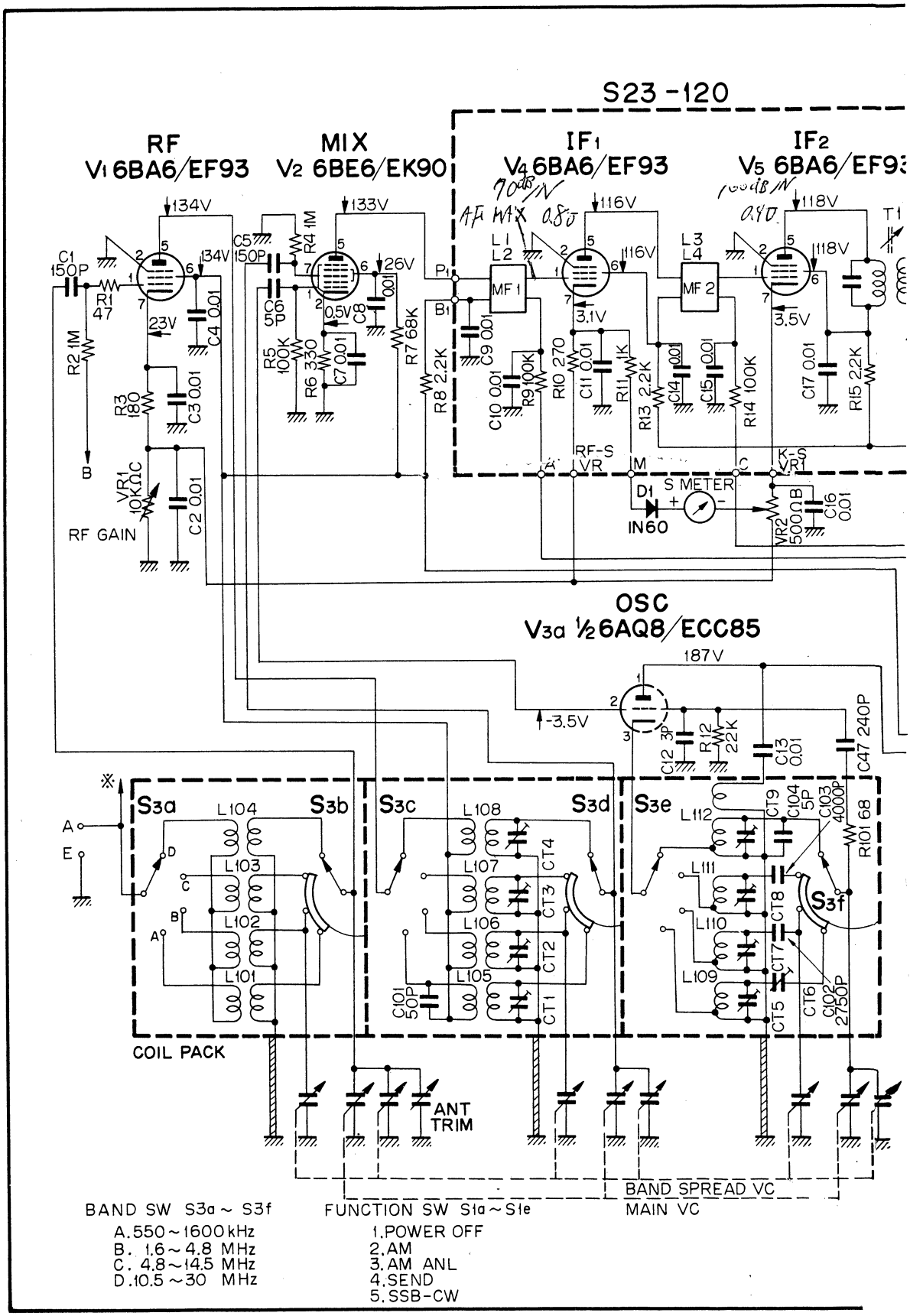
SIGNAL GENERATOR

ADJUST	OUTPUT INDICATION
Mechanical filter, matching transformer and IFT core	For maximum deflection of the S meter.
'A' band padding condenser	So that 600 kHz signal generator output can be received.
'A' band OSC trimmer	Repeat steps 2 and 3 several times so that 1,400 kHz singal is best received at dialed setting.
'A' band ANT & RF trimmers	For maximum deflection of the S meter. Attenuate signal generator output level if it is excessive.
'B' band OSC coil core	Repeat steps 5 & 7 several times so that 1.7 MHz generator signal is received at indicated dial setting.
'B' band ANT, RF coil core	Repeat steps 6 and 8 several times so that both the 4 MHz and 1.7 MHz generator signals produce maximum deflection of the S meter.
'B' band OSC trimmer	Repeat steps 5 and 7 several times so that 4 MHz generator signal is received at indicated dial setting.
'B' band ANT, RF trimmers	For maximum deflection of the S meter.
'C' band OSC coil core	Repeat steps 9 & 11 several times so that the 6 MHz signal is best received at indicated dial setting.
'C' band ANT & RF coil core	Repeat steps 10 & 12 several times so that 6 MHz and 12 MHz signals produce maximum deflection of the S meter.
'C' band OSC trimmer	So that 12 MHz signal can be received at dialed setting.
'C' band ANT & RF trimmers	For maximum reception of 12 MHz signal.
'D' band OSC coil core	Repeat steps 13 & 15 several times so that the 13 MHz generator signal is received at indicated dial setting.
'D' band ANT & RF coil core	Repeat steps 14 & 16 so that the 13 MHz generator signal produced maximum deflection of the S meter.
'D' band OSC coil trimmer	So that 26 MHz generator signal can be received.
'D' band ANT & RF trimmers	For maximum deflection of the S meter of 26 MHz signal.

of the RF and ANT trimmer adjustment can be made by connecting a short
ına and bringing it near a fluorescent lamp. Maximum interference recep-
correct adjustment.


S23-120
RF
V1 6BA6/EF93
MIX
V2 6BE6/EK90
IF1
V4 6BA6/EF93
IF2
V5 6BA6/EF93
OSC
V3a ½6AQ8/ECC85
S METER
IN60
RF GAIN
COIL PACK
ANT TRIM
BAND SPREAD VC
MAIN VC
BAND SW S3a ~ S3f
A. 550 ~ 1600 kHz
B. 1.6 ~ 4.8 MHz
C. 4.8 ~ 14.5 MHz
D. 10.5 ~ 30 MHz
FUNCTION SW S1a ~ S1e
1. POWER OFF
2. AM
3. AM ANL
4. SEND
5. SSB-CW

ATIC DIAGRAM